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EXAMINER	
GOLUB, MARCIA A	

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2828	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/659,958  
Filing Date: September 10, 2003  
Appellant(s): LO ET AL.

**MAILED**

JUL 05 2007

**GROUP 2800**

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Kevin A. Reif  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 04/23/2007 appealing from the Office action mailed 12/18/2006.

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**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,724,789	Vujkovic-Cvijin	4-20-2004
6,359,915	Koch et al.	3-19-2002
6,222,861	Kuo et. al.	3-24-01

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Vujkovic-Cvijin (6,724,789) hereinafter '789, and further in view of Koch et al. (6,359,915) hereinafter '915.

Figures 10 and 10A of '789 discloses a system comprising:

“an external cavity diode laser (ECDL) [36];

a temperature controlled sled [154] to tune the ECDL;

an etalon [78] to tune the ECDL;

a multiple bandwidth mode controller comprising a high bandwidth mode [coarse adjustment] for seeking a new target frequency and a lower bandwidth mode [stabilizing loop] for tracking the target frequency.”

'789 does not disclose:

“said controller to initially drive said etalon in said high bandwidth mode for a coarse tuning adjustment and switch to said lower bandwidth mode to drive said temperature controlled sled for fine tuning adjustment when an error signal associated with a target frequency is within a threshold range.”

However, '915 discloses a tunable laser that is mode locked by coarse tuning the filter (for example a Bragg region) first and then fine tuned by adjusting the temperature of the laser. (2/54-63) Also, '789 discloses that the fine adjustment [stabilizing loop] is based on the error signal received from the photodetectors [64, 80].

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of '915 into the device of '789 by driving the mode controller in the coarse mode (by adjusting the etalon) and fine tuning (by controlling the temperature) for at least the purpose of modelocking the laser to a desired wavelength.

**Claims 8 and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over '789 and '915 as applied to claims 1 and 15 above, and further in view of Kuo et al (6,222,861) hereinafter '861.

'789 and '915 disclose a tunable laser as described above but do not disclose that coarse tuning is accomplished with an open loop controller.

However, '861 discloses using a “feed-forward” loop for coarse tuning and a feedback loop for fine tuning. (2/41-46)

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of '861 into the device of '789 and '915 by driving the wavelength controller in the coarse mode in an open loop for at least the purpose of quickly setting the laser close to a desired wavelength.

**(10) Response to Argument**

A. Regarding the appellant's arguments directed to independent claims 1 and 15, the appellant argues that the reference '789 teaches away from the disclosed invention by teaching controlling the coarse adjustment by controlling the temperature of the laser, while the present invention discloses controlling the fine adjustment by controlling the temperature of the laser.

1. The examiner points out that the "multiple bandwidth mode controller" as claimed is best understood as a switch: in the first position the switch connects voltage supply with an etalon (for coarse adjustment) in the second position the switch connects the voltage supply with a temperature sled (for fine adjustment). There is nothing inherently present in the switch that prevents it from being connected in the opposite direction: in the first position the switch connects voltage supply with an etalon and in the second position the switch connects the voltage supply with a temperature sled.

2. '789 discloses the equipment that is capable of doing the function required by the claim, i.e. laser diode, temperature sled, etalon and a controller. The only thing different is the way of using the controller. According to MPEP 2112.01 the structure of the device implies function and MPEP 2114 teaches that the functional language or the intended use of the device do not present a patentable difference over the prior art.

3. Furthermore, '915 discloses controlling the filter for coarse adjustment and controlling the temperature for fine adjustment. Therefore the use of the known device as claimed by the appellant was also known in the art, and it would have been obvious to combine the references.

4. The examiner did not rely on the secondary reference for the teaching for the multiple bandwidth mode controller, as erroneously indicated by the appellant in the first paragraph on page 8) rather the examiner relied on the teaching of using the controller of the primary reference in a way suggest by the secondary reference.

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**B.** Regarding the appellant's arguments directed to dependent claims 8 and 22, the appellant argues that the third reference '861 (Kuo et al.) does not cure the deficiencies of the primary and secondary references. The appellant's argument is based on the fact that '861 does not disclose driving the controller in the high bandwidth mode to control the etalon and in the lower bandwidth mode to control the temperature.

1. The examiner points out that there are no deficiencies present the rejection based on the primary and secondary references that need to be cured by '861, since the combination of '789 and '915 already teaches driving the controller in the high bandwidth mode to control the etalon and in the lower bandwidth mode to control the temperature.

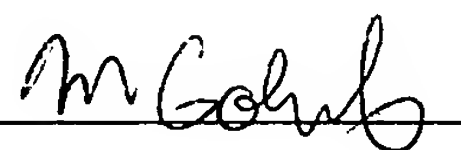
2. The third reference was relied upon by the examiner to teach an open loop controller that can be used in the coarse mode. The appellant did not dispute that '861 teaches the open loop controller (feed-forward loop) for coarse tuning and closed loop controller (feedback loop) for fine tuning. It is assumed that the appellant agrees with the examiner that '861 teaches and open loop controller that can be used in the coarse mode adjustment.

**(11) Related Proceeding(s) Appendix**


No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Marcia A. Golub 

Conferees:

Minsun Harvey 

David Blum 